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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/601,789 | 06/24/2003 | Norio Kimura | 2003-0865 | 9516 |

513 7590 07/10/2006

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WASHINGTON, DC 20006-1021

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| EXAMINER |
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SHAKERI, HADI

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| ART UNIT | PAPER NUMBER |
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3723

DATE MAILED: 07/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/601,789

Applicant(s)

KIMURA ET AL.

Examiner

Hadi Shakeri

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on RCE filed on 05/01/06.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 40,41,44-46 and 48 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 40,41,44-46 and 48 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 August 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☒ Certified copies of the priority documents have been received in Application No. 09/897,918.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

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DETAILED ACTION***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on May 01, 2006 has been entered.

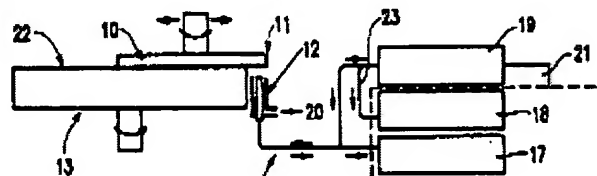
Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 40, 41, and 44-48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lebel et al. (6,334,807) in view of Watanabe et al. (5,951,368) and Osterheld (6,616,513).

Lebel et al. discloses all of the limitations of claims 40 and 44, i.e., a polishing table (13) having a polishing surface substantially 1.5 times the diameter of the lower surface of a substrate

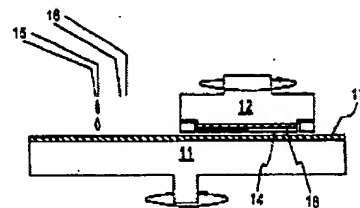


carrier (11) for holding a substrate (10) and bringing the substrate into contact with said polishing surface, a liquid supply nozzle (supplying 22), water nozzle (03:35-37) to spray the wafer, and a film thickness measurement device (14, 16-19) for determining an end point of the polishing and being positioned at an outer peripheral portion of the table, except for disclosing

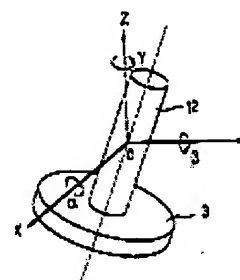
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an attitude control mechanism for keeping the lower surface of the substrate carrier parallel with the polishing surface and a nozzle providing water to the pad.

Regarding water nozzle, Osterheld discloses that a typical polishing apparatus includes a water nozzle for rinsing the pad. It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to modify the invention of Lebel et al. with the water nozzle as taught by Osterheld to rinse the pad.



Watanabe et al. teaches polishing apparatus, which can control the attitude of the top ring with respect to a surface of a turntable of a polishing apparatus.



It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to modify the invention of Lebel et al. with the attitude control mechanism as taught by Watanabe et al. to provide a uniform polishing surface pressure across the entire polish surface.

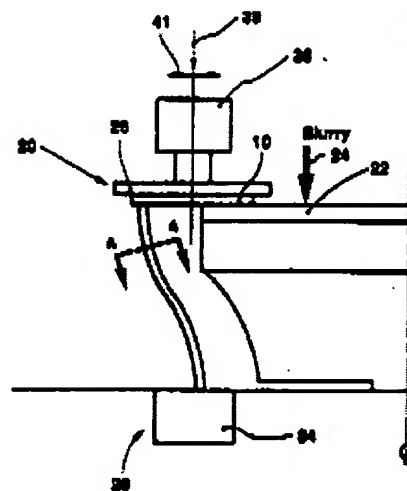
Regarding claims 41, 45 and 48, Lebel et al. as modified by Osterheld and Watanabe et al. meets all of the limitations, e.g., pivotal shaft rotatably supporting the carrier and a second nozzle for supplying water to the wafer.

Regarding claim 46, Lebel et al. as modified by Osterheld and Watanabe et al. meets all of the limitations, except for the means of controlling the temperature, i.e., Lebel et al. discloses that it is known to control the polishing parameters, e.g., temperature, to enhance the operation (01:11-44), and it is considered to be within the knowledge of one of ordinary skill in the art, to make such adjustments by controlling the temperature of the slurry.

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4. Claims 40, and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schultz (Re. 34,425) in view of Watanabe et al. (5,951,368).

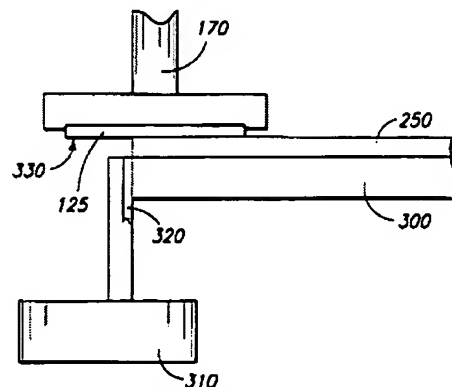
Schultz discloses all of the limitations of claims 40 and 41, i.e., a polishing table (22) having a polishing surface, a substrate carrier (26) having a lower surface for holding a substrate (10) and bringing the substrate into contact with said polishing surface, a liquid supply nozzle (supplying 24), water nozzle to wet the pad (05:1-2) and a nozzle to spray the wafer (52), and a film thickness measurement device (28) for determining an end point of the polishing and being positioned at an outer peripheral portion of the table, except for disclosing an attitude control mechanism for keeping the lower surface of the substrate carrier parallel with the polishing surface.



Providing attitude control mechanism to uniformly polish the wafer is an obvious modification in view of Osterheld and Watanabe et al. as indicated above.

5. Claims 40, and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lenkersdorfer (6,213,844) in view of Watanabe et al. (5,951,368) and Osterheld (6,616,513).

Lenkersdorfer discloses all of the limitations of claims 40 and 41, i.e., a polishing table (300) having a polishing surface (250), a substrate carrier (170) having a lower surface for holding a substrate (125) and bringing the substrate into contact with said polishing surface, a liquid supply nozzle (not shown), water nozzle (320) to spray the wafer, and a film thickness measurement device (310) for determining an end point of the



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polishing and being positioned at an outer peripheral portion of the table, except for disclosing an attitude control mechanism for keeping the lower surface of the substrate carrier parallel with the polishing surface and a nozzle providing water to the pad.

Providing nozzle to wet the pad and attitude control mechanism to uniformly polish the wafer are obvious modification in view of Osterheld and Watanabe et al. as indicated above in section 3.

Response to Arguments

6. Applicant's arguments filed on May 01, 2006 have been fully considered but they are not persuasive.

The argument that positional relationship between the substrate carrier, the polishing table and the thickness measurement device clearly define over Lenkersdorfer is not persuasive, since Lenkersdorfer clearly discloses a substrate carrier extending radially outwardly of the table and a measurement device position at the outer peripheral portion of the table as recited in claims 40 and 41. The argument that the wafer is always maintained under an overhanging condition does not apply to the claims rejected over Lenkersdorfer.


Further it is noted, as was indicated in the previous Office Actions, the claims are directed to an apparatus, the mode of operation of the apparatus, or how it is operated does not further limit the apparatus so long as the prior art apparatus is capable of performing the function. The fact that the wafer is always maintained in overhanged position, does not further limit the apparatus (e.g., in non-operating status), and since anyone of prior art apparatuses as applied to the claims, are capable of maintaining the wafer at overhanged position, even though such mode of operation is not disclosed or envisioned.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hadi Shakeri whose telephone number is 571-272-4495. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph J. Hail, III can be reached on 571-272-4485. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

A handwritten signature in black ink, appearing to read 'Hadi Shakeri', with a long horizontal flourish extending to the right.

Hadi Shakeri
Primary Examiner
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June 29, 2006